JUN 15 1995

EPIDEMIOLOGIC INVESTIGATION REPORT

1. CASE NO.: X9510215 950120CCC2263	2. INVESTIGATOR'S ID: 8123	3. OFFICE CODE: 830
4. DATE OF ACCIDENT: YR 94 MO 01 DAY 08	5. DATE INVESTIGATION INITIATED: YR 95 MO 03 DAY 06	

6. SYNOPSIS OF ACCIDENT OR COMPLAINT: At approx. 11:30AM, a fire was discovered in the kitchen of a single family residence. Investigating officials determined that the point of origin was an electric toaster oven, about seven years old. It had been used to make toast about an hour prior to the fire. The engineer who examined the toaster oven believes there was a mechanical problem that caused the heating elements to remain energized after the toast was removed.

7. LOCATION (Home, school, etc.): Home - kitchen 10	8. CITY: Minneapolis	9. STATE: MN
10A. FIRST PRODUCT: Toaster oven 0216	11A. TRADE/BRAND NAME, MODEL NUMBER, MANUFACTURER & ADDRESS: Model No. B1TR025 Black & Decker Co., Towson, MD 21204	
10B. SECOND PRODUCT: none 0000	11B. TRADE/BRAND NAME, MODEL NUMBER, MANUFACTURER & ADDRESS	
12. AGE OF VICTIM: 999	13. SEX (Use numerical code) MALE -1 FEMALE -2 UNKNOWN -3: 9	14. DISPOSITION: no injury 9
15. INJURY DIAGNOSIS: no injury 99	16. BODY PART: 99	17. RESPONDENT(S) (Mother, Friend): Insurance Adjuster & Forensics Engineer 3
18. TYPE INVESTIGATION: ON SITE 1 TELEPHONE 2 OTHER 3: 2	19. TIME SPENT: 40	
20. ATTACHMENTS: Engineer's report 2	21. CASE SOURCE: Engineer 13	22. REVIEWED BY: 8130 YR 95 MO 06 DAY 14

23. PERMISSION TO DISCLOSE NAMES (NON-NEISS CASES ONLY)
CPSC MAY DISCLOSE MY NAME ☐
victim not contacted
CPSC MAY NOT DISCLOSE MY NAME X

24. NARRATIVE (See Instructions on Other Side)

25. REGIONAL OFFICE DIRECTOR REVIEW DATE

MFR/PRVLBR NOTIFIED 5/15/95
No Comments made
Comments attached
Ex... Revisions
Fir... ...is not requested
further notice

(USE OTHER SIDE AND ADDITIONAL SHEETS IF NECESSARY)

CPSC FORM NO. 182 (Revised 10/85)

APPROVED FOR USE THROUGH 5/31/94 OMB NO. 3041-0029

SUMMARY:

This case was assigned as a follow up to a report from a forensics electrical engineer concerning a residential fire associated with an electric toaster oven. The respondents are the electrical engineer and a claims adjuster representing the homeowner's insurance company. There were no injuries and the fire was confined to the kitchen area. The homeowner's telephone has been disconnected and his present whereabouts are unknown.

The homeowner is believed to have received an electric toaster oven as a gift in December, 1987. No information is available regarding the frequency of use or service history of the appliance. It was installed on a steel appliance cart in the kitchen along with a waffle iron, a crock pot, and a deep fat frier. The toaster oven was the only appliance on the cart that was plugged into an electrical outlet at the time of the fire.

On the day of the incident the homeowner used the toaster oven to make breakfast and then left the house at approximately 10:30 am. The fire was discovered about one hour later. According to the insurance adjuster, the flames were confined to the kitchen. The point of origin was determined to be the steel appliance cart located in a corner between two doorways leading to the dining and living rooms.

A forensics electrical engineer retained by the homeowner's insurance company collected and examined evidence from the fire scene. He concluded that the toaster oven was the source of the fire. The report of his laboratory examination of the toaster oven is attached. He concluded that the toaster solenoid was the component that failed. The oven was also examined by a metallurgical engineer, whose report is also attached.

The engineering technician who has been working on the toaster oven said the failure was mechanical in that the solenoid plunger became stuck for some reason. He said this problem did not seem to be related to failures in two other ovens they have examined. In those cases, the solenoid did not function because of an electrical defect.

PRODUCT IDENTIFICATION:

The product associated with this incident is an electric toaster oven. It is identified as model #"B1TR025". The toaster oven is marketed by Black & Decker Corp., Towson, MD. 21204.

ATTACHMENTS:

1. Assignment document.

2. Engineering Report.

CHIO

ACCIDENT INVESTIGATION REQUEST FORM

Document Number X510215C

Date of Incident 6/8/94 Category I.D. SECTION 15 1995

Follow-Up Requested | Hazard Analysis | Section 15

Type Follow-Up Requested | Telephone Call | On-Site

Headquarters Contact Jeanne Siebert

Assignment Message

Please provide: 1) details of incident
2) any reports
3) product
4) Dr. Svare's report

Person(s) to Contact [redacted] 220

of [redacted]

at [redacted] MN

Guideline

Requested By Jeanne Siebert

Task Number 950120CCC2263

Assigned to _____ Date _____

Memorandum

X5 10215

JAN 19 1995

To: John R. Vece, SI, FOCR

CC: MSP

From: Dennis D. Donath, U.S. Consumer Product Safety Commission

Date: August 11, 1994

Subject: GE/Black & Decker Toaster Ovens, Models A8T26(GE) and TR020/025(B&D)

On July 27, 1994, I visited Svare Forensics in Isanti, Minnesota, regarding an automatic coffeemaker that was involved in a house fire. While I was there, [redacted] told me about three fire incidents associated with toaster ovens.

The first occurred in August, 1984, in Shoreview, Minnesota, at the home of [redacted]. At that time, he owned a GE toaster oven, Model A8T26, which apparently caused a fire. A settlement was reached with the manufacturer. The attorney who has the file on that case [redacted]

[redacted] explained the component failure responsible for the fire as follows:

To prepare toast, bread is placed in the oven and the door is closed. The operator moves the toast color selector dial to the desired setting and pushes the toast lever down. This causes the top and bottom heating elements to be energized. Current also flows to a bi-metallic thermostat which is adjusted by the toast color selector dial. When the toast is done, a solenoid is energized, which causes the toast lever to flip up, a bell to ring and current to the heating elements to go off. There is a master switch connected to the door which shuts off current to the elements whenever the door is opened. The operator can check on the toast at any time by opening the door.

[redacted] found that an arc had occurred on the surface windings of the solenoid in the 1984 incident. With the solenoid not functioning, the bell would not ring, the toast lever would not go up and the elements would

continue to heat until the operator smelled smoke and opened the door or the bread started on fire. Assuming that the operator removed the toast before it burned, the chances are that the lever remaining in the down position would go un-noticed. Thus, when the door was closed again, the heating elements would be energized. Depending on how close the oven was to combustibles and how long it remained on before someone noticed, a fire situation could develop.

On June 4, 1994, a fire occurred at the h[redacted] Minnesota. The contents of the home were declared a total loss. The point of origin was a B&D toaster oven, Model B1TR020. Dr. Svare found that the design of the toaster oven was essentially unchanged from the earlier GE model, and that the solenoid failed after arcing occurred. The case is being handled by [redacted] Property Adjusting, Minneapolis, Mi[redacted]2285).

B

B-9501120CCC-22 & 3

On June 8, 1994, a fire occurred at the residence of [redacted] 3637 Clinton Ave. So., Minneapolis, Minnesota. The fire was confined to the kitchen area. The point of origin was a B&D toaster oven, Model TR025. The case is being handled by M[redacted] adjuster for Midwest Family Mutual Insurance Compa[redacted]). This toaster oven is essentially the same as the TR020 and both are covered by the same owners manual. Dr. Svare has not concluded his investigation of this toaster oven, however there are indications that the solenoid did not function properly.

C

Two attached photographs are of a B&D toaster oven Dr. Svare purchased for testing and demonstration purposes. They show the location of various components in the control section of the oven. The solenoid where arcing occurred is to the left of the brass bell. The master switch is at the lower right and is connected to the door by a metal rod.

The following documents are also attached:

1. GE parts list(1984)
2. B&D owners manual, Models TR020/025
3. Case info sheets, 6/4/94 fire
4. Case info sheets, 6/8/94 fire

Dennis D. Donath
Senior Investigator
Twin Cities Resident Post

U.S. CONSUMER PRODUCT SAFETY COMMISSION

DENNIS D. DONATH
INVESTIGATOR

FEDERAL COURTS BUILDING
316 NORTH ROBERT ST., ROOM 142
ST. PAUL, MINNESOTA 55101

(612) 290-3781
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TO: TL 17310

Product Safety Commission

• St. Paul, Minnesota 55101 • 612-290-3781 • 612-290-3708 fax

950120CCC2263

March 6, 1995

From:

[redacted] Family Mutual Insurance Co.
P.O. Box 9425
Minneapolis, Minnesota 55440

Dear [redacted]

As a follow-up to our telephone conversation this afternoon, I would like to request copies of reports relative to a toaster oven fire that occurred on June 8th at the residence of Mr. Charles Houston, Minneapolis, MN. This would include any reports prepared by Dr. Robert Svare, as well as conclusions reached by a metallurgical engineer who examined the product.

Sincerely,

Dennis D. Donath

Dennis D. Donath
Senior Investigator

950120CCC2263

REPORT ON THE [redacted] FIRE AND

BLACK AND DECKER TOASTER OVEN

PREPARED BY:

[redacted] P.E.

JANUARY 7, 1995

Svare Case Number: 94060801
Svare Case Name: [redacted] House Fire

BACKGROUND

I was contacted on June 8, 1994 [redacted] of Minnesota Family Mutual Insurance for the purpose of looking at a residential fire that occurred that same morning at [redacted] Avenue South, Minneapolis, Minnesota. The home was occupied by Mr. and Mrs [redacted] According to Mr. Hobbs, [redacted] had made breakfast using a toaster oven and had left the house about 10:30 a.m.. The fire was discovered about 11:30 a.m..

[redacted] also indicated that the fire department examined the scene and thought that a light could be involved in the cause of the fire. I agreed to meet at the scene the following morning with Larry Plack of L.S. Plack & Associates.

SCENE EXAMINATION

On 06/09/94 [redacted] and I met at the scene with Larry Plack and proceeded to examine it. During the examination we noted the following:

1) The electrical system feeding the building consisted of a 100 Amp overhead service drop feeding a 100 Amp Challenger panel. There was only one circuit breaker tripped on the panel. The was a 15 Amp breaker that fed the kitchen light.

2) Fire damage was confined to the kitchen in the area outside of the stove, refrigerator and sink triangle. The area of origin was in the corner between the doorways to the dining room and living room.

2A) In this corner was a cupboard that the home owner had indicated consisted of two doors and four shelves. The cupboard contained cameras, games, pots and pans, home records, but nothing of any electrical nature.

2B) Next to the cupboard, which was covered with Luan type mahogany paneling, was a steel appliance cart. The bottom shelf held a waffle iron and a crock pot. On the top shelf was a deep fat fryer and a toaster oven.

2C) The only one of these appliances plugged in was the toaster oven. It was plugged into a receptacle that was mounted 30 inches from the back corner of the wall, about ten inches, on center, above the floor.

3) I noted that there was no sign of intense burning by the light fixtures. The fire attacked the fixtures from the outside. The joist that held the fixture's junction box was only lightly charred from the fire. One small point of electrical faulting was contained within the confines of the breakfast bar light fixture.

4) I noted that there was low burning in the area of the toaster oven and heat damage to the side of the deep fat fryer. The deep fat fryer was not plugged in at the time of the fire.

I took for evidence both light fixtures, the toaster, the toaster oven, the microwave, the can opener, mixer, under cupboard radio, light switch, the receptacle, the circuit breakers that fed the cart and the overhead light and a piece of paneling from the side of the cupboard. I retained these for future examination.

LAB EXAMINATION

On 06/11/94 the remains of the Black & Decker toaster oven removed from the Houston residence was examined. The following was noted during examination:

1) The unit was identified as a Black & Decker, model #B1TR025.

   A) Identification was made from the bottom cover of the unit, and the user's manual (TR025).

   B) The model number and date received had been recorded in the user's manual. The model number was B1TR025. The date received was 12/28/87.

2) The line cord measured 28" from where the cord exited the unit to the tip of the male prongs. Markings on the non-polarized line cord plug and prongs were noted:

   A) Molded into the plug was the name "Victor"

   B) The letter "P" was found stamped on the inside of one of the male cord prongs.

   C) The number "707" was stamped on the outside of the same prong.

3) Each of the end panels of the oven were found attached by one screw in the bottom of the unit.

4) The oven thermostat was found in the closed position. The thermostat was distorted. The front panel control knob for this control was more damaged than the others.

5) The neon indicator light assembly was still intact. The neon light bezel on the front of the unit was also intact.

6) The resistance of the toaster solenoid measured 67 Ohms DC.

7) No remains of the glass door or its hinges were present for examination.

8) The toaster thermostat at the bottom of the oven was found intact.

9) The heating element resistance of each element (without disconnecting any element from a circuit) measured approximately 7 Ohms. Each of these elements was distorted.

11) One aluminum heating element reflector was present for

examination. No sign of gross melting was noted on the reflector.

12) The steel oven case was distorted at the rear center of the unit.

13) The solenoid plunger had a shadow pattern that indicated that the plunger had not released before the fire.

I transferred the toaster oven to metallurgist John Brynildson on June 16, 1994 for further examination.

OPINIONS

Based on my examination of the scene and the appliances, experience and education, I have formed the following opinions:

1) The fire was caused by the toaster oven. The fire patterns place it at the origin.

2) The failure of the oven was due to a defective solenoid plunger.

TL 107510

T. CRANE AND ASSOCIATES INCORPORATED

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(612) 557-9090 (24 hours)
Fax (612) 557-0710
1(800) 538-2797

950120CCC2263

November 18, 1994

[redacted]
Midwest Family Mutual Insurance Co.
10601 Wayzata Blvd
Minneapolis, MN 55305

RE: [redacted] TCA File No.: I1871E
Descriptor: MET/TOASTER OVEN/HOUSTON

[redacted]

A Black & Decker toaster oven which had been involved in a building fire was examined in order to determine what role it may have played in the fire causation. The toaster oven was photographed with a 35mm camera and a Sony video printer attached to a metallurgical stereomicroscope. There was a plunger in the solenoid which displayed a residue buildup. It had a line of demarcation on it which indicated a hangup or sticking of the latch controlling power to the unit. There were also three control knobs on the front right side of the toaster oven which exhibited a progressive deteriorated condition (melting distortion) from bottom to top (least on the bottom, most on the top). An exemplar unit was operated with the side cover removed to expose the electrical contacts and switches. During this operation it was discovered that the heating elements in the unit would remain energized until the oven door was open past a 45 degree angle (over half open). After that point a switch of some nature would interrupt the energy flow.

If you have any questions or thoughts about this matter, please contact me.

Respectfully submitted,

T. CRANE & ASSOCIATES, INC.

John E Brynildson

John E. Brynildson, P.E.
Metallurgical Engineer
Minnesota License 11835

JEB:jd